

## Foundations of Physics and Mathematics: Definition of Time and Space

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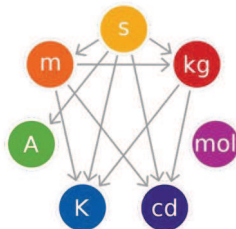
### Abstract

Within “Solution to the Problem of Time I, II, III, IV, V and VI, [1,2,3,4] the author showed the idea to step forward to a new mathematics and physics based upon a nominal definition of space-time, represented by the only mathematical constant “ $\pi$ ”, from which all physical natural constants like speed of light, gravitational constant, Planck’s constant, elementary charge... etc) can be derived. In fact, with the discovery of the true nature of “time”, there are no “constants” in physics any more.

### The dimension of time in physics

Stephen Hawking famously said

If we do discover a complete theory, it should in time be understandable in broad principle by everyone, not just a few scientists. Then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason — for then we would know the mind of God.



The units in physics we used to build our models are based on time (second), on which all other measures depend, (except the mol). It is not possible to unite Chemistry and Biology therefore with general relativity and quantum theory as general Relativity and Quantum Theory can never be united in one theory as long as they use different concepts of the unit “second” of time.

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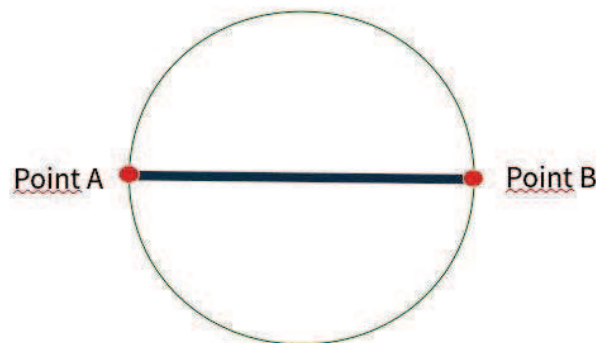
Today, the second of time is defined as

The second, symbol s, is the SI unit of time. It is defined by taking the fixed numerical value of the caesium frequency  $\Delta\nu_{Cs}$ , the unperturbed ground-state hyperfine transition frequency of the caesium 133 atom, to be 9192631770 when expressed in the unit Hz, which is equal to  $s^{-1}$ .

The discovery of the real physical nature of time makes it possible to final define the connection between space and time. In "Solution to the Problem of time" [1] the author exchanged Einsteins postulate of the constancy of light with the postulate that space must be proportional to time (Which then is cause for the effect of the constancy of speed of light).

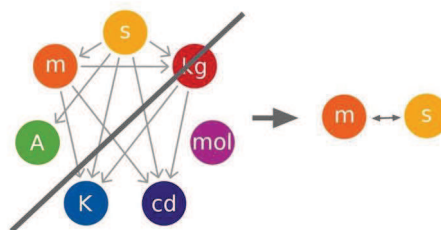
Universal measurement (perception) of space and time and the connection of space and time:

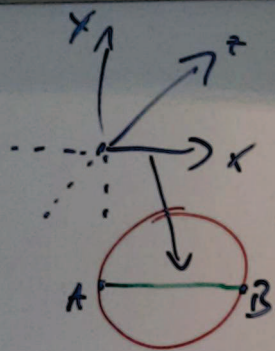
1-Dimensional straight line (movement with velocity meter (unit) of space (dimension) per second (unit) of time (dimension) between Point A (begin) and Point B (end)



**Definition of a second of time :** A second of time is the duration (circumference) between location A and B while the meter of space is defined as the distance between location A and B"  $\text{second of time} = \text{meter of space} \cdot \pi$

**Definition of a meter of space :** A meter of space is the distance (diameter) between location A and B while the second of time is defined as the duration (circumference) between location A and B"  $\text{meter of space} = \frac{\text{second of time}}{\pi}$





### DEFINITION OF TIME + SPACE

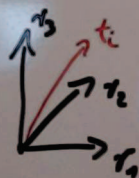
• = SPACE between A and B

• = time between A and B

$$\pi = \frac{\text{time } \overline{AB}}{\text{Space } \overline{AB}}$$

### EINSTEIN 4D-Space Time:

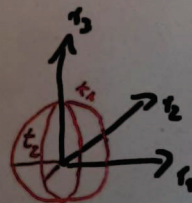
Wrong:



3-dim Space  
1-dim - Time

### NEW. 5D-SPACETIME

Correct:  $\pi = \frac{\text{time}}{\text{SPACE}}$



3-dim space  
2-dim time

## References

1. Pohl M U E 2019, Unified Principels of Nature: Solution to the Problem of Time. Scientific GOD Journal Volume 10 Issue 3 : <https://scigod.com/index.php/sgj/issue/view/93>
2. Pohl M U E 2020, Unified Principels of Nature: Solution to the Problem of Time II +III. Scientific GOD Journal Volume 11 Issue 1 : <https://scigod.com/index.php/sgj/article/view/718>
3. Pohl M U E 2020 :It takes a Decision to Decide if Decidability is True or False, :  
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4. Pohl M U E 2020 :Solution to the “Problem of Time” IV : Experimental proof of ToE in 12-dim Space-Time : <https://vixra.org/abs/2002.0238>
5. Pohl M U E 2020 :Unified Principles of Nature: List of Physical Quantities after Correction of Definition of Time and Planck’s Constant in Base-SI-Units : <https://vixra.org/abs/2002.0283>